AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

COMPLETE LISTING OF THE CLAIMS:

Claims 1-25 : (Canceled)

Claim 26 : (New) An optical attenuator for receiving input radiation and attenuating the input radiation in response to a drive signal to provide corresponding output radiation, and for providing an attenuation dependent upon its temperature, the attenuator comprising: temperature modifying means for modifying its temperature in response to the drive signal; and controlling means for receiving a signal indicative of attenuation required, and for generating the corresponding drive signal which comprises a pulse width modulated (PWM) signal, each PWM signal cycle corresponding to a frame, a plurality of successive frames forming a multiframe, the controlling means being operable to modify a duty ratio of at least one of the frames within each multiframe for providing enhanced resolution attenuation provided by the attenuator.

Claim 27 : (New) The attenuator according to claim 26, in which the PWM signal is of substantially constant cycle period, and further comprising filtering means operable to attenuate components of the PWM signal at a frequency corresponding to the cycle period.

Claim 28 : (New) The attenuator according to claim 26, in which modifications to the duty ratio of the frames within each multiframe are substantially uniformly distributed within the multiframe.

Claim 29 : (New) The attenuator according to claim 27, in which the duty ratio of each frame is incrementable in discrete steps, the modifications to the duty ratio of the frames corresponding to one such step difference.

Claim 30 : (New) The attenuator according to claim 26, in which each multiframe comprises in a range of from 2 to 1000 frames.

Claim 31 : (New) The attenuator according to claim 30, in which each multiframe comprises 64 frames.

Claim 32 : (New) The attenuator according to claim 26; and further comprising detecting means for receiving a portion of the output radiation, and for generating a corresponding detection signal; amplifying means within the controlling means for comparing the detection signal with a reference signal, and for adjusting via the temperature modifying means the temperature of the attenuator so that the output radiation has associated therewith a radiation power determined by the reference signal.

Claim 33 : (New) The attenuator according to claim 26, in which the controlling means is implemented as a field programmable gate array (FPGA).

Claim 34 : (New) The attenuator according to claim 33, in which the FPGA is operable to generate the PWM signal which is buffered by power MOSFETs for output to drive the attenuator.

Claim 35 : (New) The attenuator according to claim 33, in which the FPGA is clocked at a rate of at least 30 MHz.